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CONFIRMATION NO. APPLICATION NO. FILING DATE FIRST NAMED INVENTOR ATTORNEY DOCKET NO. 10/017,543 12/13/2001 10014774 -1 Arlen L. Roesner 8101 7590 10/09/2003 EXAMINER HEWLETT-PACKARD COMPANY CHERVINSKY, BORIS LEO Intellectual Property Administration ART UNIT PAPER NUMBER P.O. Box 272400 Fort Collins, CO 80527-2400 2835

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Application/Control Number: 10/017,543

Art Unit: 2835

DETAILED ACTION

In view of the Board Of Appeals decision the finality of the last Office Action dated 10/24/02 has been withdrawn. The Board Of Appeals suggested in its decision to consider upon further prosecution of the instant application the rejection under §103(a), which follows.

Claim Rejections - 35 USC § 103

- 1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 2. Claims 1-9, 22-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski

Green discloses the assembly comprising a thermal interface disposed between a heat sink 42 and a heat generating electronic component 41, the thermal interface having a carrier 44 made of either metal foil or thermally conductive plastic sheet, the carrier having a layer of a phase-change material 45 on one side and a layer of a pliable thermally conductive material 46 on the other side (col. 3, line 65). Green discloses the claimed invention but having the pliable thermally conductive material being the phase change material therefore having that material on both sides of the carrier. Brzezinski discloses the thermal interface arrangement having the phase change material 58 (col. 6, lines 33-35) on one side of the carrier 56 and thermal grease on the opposite side of the carrier (col. 7, lines 12-16) It would have been obvious at the time the invention was

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made to a person having ordinary skill in the art to apply phase change material on only one side of the carrier as disclosed by Green and have just any other pliable thermally conductive material, such as thermal grease, on the other side as disclosed by Brzezinski because:

- a. the pliable thermally conductive materials such as grease are well known and widely used as indicated by Green, col. 2, lines 27-33;
- b. to apply the thermal grease on one side of the carrier can be more economical since thermal grease is readily available and inexpensive;
- c. the thermal grease layer can be applied to the carrier in any desirable thickness;
- d. the thermal grease layer can be field applied on the carrier and does not need to be prefabricated as it may be the case with phase change material,

therefore such modification to the thermal interface disclosed by Green would be a justified option.

Regarding claims 5 and 26, Green discloses the claimed invention except for specific materials such as copper, gold, silver and aluminum. Copper, gold, silver and aluminum are well known as being excellent heat conductors and these materials are widely used in industry as heat spreaders. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have carrier made of these materials, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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- 3. Claims 10, 11, 13-15, 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski and further in view of Tzeng et al. Green discloses the claimed invention except a removable protective cover. Tzeng et al. disclose the thermal interface having a pressure sensitive layer 13 covered by a removable protective cover. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use removable protective layer as disclosed by Tzeng in the structure disclosed by Green as to protect the pliable thermal compound layer prior to installation.
- 4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski and further in view of Tzeng et al.

Green discloses the claimed invention except for specific materials such as copper, gold, silver and aluminum. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have carrier made of these materials, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski and further in view of Tzeng, as applied to claim 10, and further in view of Lee et al.

Green discloses the claimed invention except a removable protective cap. Lee discloses the removable protective cap 56 to protect thermal grease 40 prior to installation. It would have been obvious to one having ordinary skill in the art at the time the invention

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was made to have the protective removable cap as disclosed by Lee et al. in the device disclosed by Green et al. in order to protect pliable surface or thermal grease.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris L. Chervinsky whose telephone number is 703-308-5429. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on 703-308-4815. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-5115.

SORIS CHÉRVINSKY

RICHARD K. SEIDEL DIRECTOR

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